

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-4

REPLY TO:

5230 Evaluation

November 13, 1974

SUBJECT:

Douglas Fir Tussock Moth - Las Vegas District,
Toiyabe National Forest

TO:

Record



On November 1-2, 1974, an evaluation was made of the 1974 Douglas fir tussock moth defoliation in McFarland Canyon and Boy Scout Camp area on the Las Vegas District of the Toiyabe National Forest by entomologist Galen C. Trostle as a followup to the evaluation done in 1973.^{1/}

The 1973 report predicted that: (1) there would be a substantial population hatch in 1974, (2) there would be less feeding than in 1973, (3) that the population would continue to decline, and (4) that any tree mortality would have little effect on any currently used resource. The recommendation was: "Do not conduct direct control activities against the Douglas fir tussock moth." The observation made during this evaluation indicates that these predictions were accurate.

The 1974 defoliation was substantial in all the area of past heavy to moderate damage. Except in rare cases, at least 80 percent of the 1974 needles showed some feeding damage. In fact, it appeared, from the amount of feeding damage on small firs under four feet high and several ponderosa pines, that the lack of foliage on larger trees forced the larvae to feed on the less acceptable hosts.

The 1974 summer season was very dry and could have contributed to tree mortality; however, feeding damage was so severe in several areas that more trees succumbed than was expected. Substantial permanent damage may also have occurred to the young understory trees that are top killed. Individual branch mortality occurred in several trees with heavy dwarf mistletoe infections.

A rather strange regrowth pattern was occurring on the more vigorous trees. The uppermost branches showed less damage than did the remainder of the crown. This is unusual because feeding populations usually are greatest in the upper portions of the crown. The normal response for this insect is to move to the upper portion of the tree so that defoliation occurs first in the upper crown and then later in the lower crown. Likewise, new growth will first occur in the upper crown and will occur much more slowly if at all in the lower crown.

^{1/} Galen C. Trostle Biological Evaluation - McFarland Canyon and Camp Bonanza Boy Scout Camp. Toiyabe NF and Virgin Peak, BLM Land East of Mesquite.

It is pure conjecture as to what circumstances led to the present appearance of these trees since no one could be located who had made any observations during the feeding period. The best explanation seems to be that most of the feeding damage was done by newly hatched larvae followed by a population collapse, which was in turn followed by a regrowth response by the more vigorous trees.

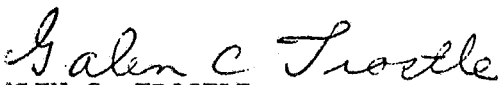
Both defoliated and nondefoliated trees were examined for pupae cases and 1974 egg masses. Old weathered pupae cases and old hatched egg masses could be found rather easily but current pupae cases and egg masses were uncommon.

Attempting to reconstruct on so little evidence is dangerous but if we consider the following three facts:

1. In areas where the large firs were completely defoliated, extensive defoliation occurred on understory trees one and two feet high as well as ponderosa pine.
2. Trees which had over 80 percent of the current foliage damaged in the lower crowns, had a considerable amount of new undamaged growth in the upper sixth of the crown.
3. Pupae cases and new egg masses were sparse or absent on all trees examined.

One must conclude that there is presently little danger of further defoliation from the tussock moth in this area, but because of the past damage, even a low population could cause further tree mortality. Even with no further defoliation, branch and possibly tree mortality may continue due to mistletoe and bark beetle damage.

It is recommended that no action be taken at present towards the suppression of any of these mortality agents, unless it becomes obvious at a later date that one of these factors is on the increase and is taking advantage of the weakened conditions of the trees.


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